Remarks

Reconsideration of this application is respectfully requested. Claims 6-9, 23-25, and 30-33 remain in the application. Claims 6, 8, 9, 23, 30, and 32 have been amended. No claims have been added or canceled. No new matter has been added as a result of these amendments as they are supported in Figure 2A and paragraphs 31, 35, and 37 of the specification as originally published.

Examiner Interview

Applicant wishes to thank the Examiner for the courtesy of a telephone interview on June 3, 2008, in which the Examiner indicated that the proposed amendments would overcome the current rejections.

Rejections under 35 U.S.C. 112

Applicant's claims 6-9, 23-25, and 30-33 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Applicant respectfully submits that claims 6-9, 23-25, and 30-33, as amended, satisfy the written description requirement. In particular, as amended, Applicant claims a first interior gateway protocol (IGP) table comprising IGP forwarding entries for a first virtual private network (VPN) context and a second IGP table comprising IGP forwarding entries for a second VPN context. Applicant respectfully submits that these claims are supported in Figure 2A and paragraph 31, which discloses VPN context 109A having IGP table 207I and VPN context 109B having IGP table 207J. Accordingly, Applicant respectively requests the removal of the first paragraph 112 rejections.

Rejections under 35 U.S.C. 103(a)

Applicant's claims 6-9, 23-25, and 30-33 have been rejected under 103(a) as being rendered obvious by Rekhtar, et al., US Patent No. 6,339,595 in view of Alfieri et al., U.S. Patent No. 7,039,720 and Jagannath et al., U.S. Patent No. 7,095,740. Applicant does not admit that either Alfieri or Jagannath is prior art and reserves the right to swear behind either reference at a later date. Nonetheless, Applicant respectfully submits the

combination does not disclose each and every element of the invention as claimed in claims 6-9, 23-25, and 30-33.

Rekhtar discloses creating multiple virtual private networks (VPNs) using edge and transit routers (Rekhtar, Abstract). A VPN is private wide-area network is a private network connecting remote customers network over a service provider's core network (Rekhtar, Fig. 1, col. 6, lines 17-25). Each edge router couples to one or more customer networks to act as the ingress or egress points with the customer's remote networks (Rekhtar, col. 2, lines 63-65). The transit routers forward the customer's VPN traffic within the service provider's core network (Rekhtar, col. 2, line 66- col. 3, line 7).

The edge router identifies incoming traffic as belonging to a particular customer's VPN, tags the incoming traffic, and forwards the tagged traffic to the next hop transit router (Rekhtar, col. 2, lines 63-65). In one embodiment, each edge router has a separate forwarding information base (FIB) for each supported VPN, but has only a general FIB for all other non-VPN forwarding decisions (Rekhtar, col. 9, lines 27-35). In another embodiment, Rekhtar discloses that the edge router has a "common table containing VPN-identified entries" in instead of separate FIB tables for each VPN (Rekhtar, col. 33, lines 36-41). In particular, Rekhtar discloses "... although we have described VPN-specific information being stored in separate tables because the approach seems most convenient, there in no reason in principle why a common table containing VPN-identifying entries could not be used instead." (Rekhtar, col. 36, lines 36-41, emphasis added). Because Rekhtar used the word "instead", Rekhtar discloses that a single common VPN table approach is a replacement for the separate table per VPN approach. Nonetheless, Rekhtar does not teach or suggest a hybrid of the two approaches.

Rekhtar's tag information base (TIB) contains next-hop information, tags, and tag-stack operations (Rekhtar, col. 10, lines 46-49). The tag is an index to a given router's routing table (Rekhtar, col. 9, lines 51-55). TIBs are modified using tag distribution protocols (Rekhtar, col. 11, lines 10-17).

Thus, Rekhtar discloses VPN related routing information as (1) either a separate FIB table for each VPN *or* a common FIB table for all the VPNs; and (2) stored in a TIB. Nevertheless, Rekhtar does not disclose maintaining some VPN forwarding information in a common VPN Exterior Gateway Protocol (EGP) forwarding table *and* VPN Interior

Gateway Protocol (IGP) forwarding information in separate tables for each VPN. Furthermore, Rekhtar does not disclose the FIB table being updated from separate EGP and/or IGP tables.

Alfieri discloses a dense virtual router packet switching system that divides the memory area into different context areas for a set of virtual private networks (Alfieri, Abstract). Alfieri further discloses a set of routing tasks that updates the single routing table of each context (Alfieri, Col. 5, lines 28-65). For example, "[e]ach context area contains a routing table and other operating state information for a different VR [Virtual Router]" (Alfieri, Col. 5, lines 33-35). Furthermore, each "[c]ontext area CTXT 134 of the memory 62 contains the routing table and other operating state for this VR" (Alfieri, Col. 5, lines 50-52). Alfieri further discloses one routing task for each routing protocol that are time-shared to handle routing requests for multiple VPNs (Alfieri, Fig. 5, Col. 5, lines 28-36). Each routing process connects to the VPN context and uses the one routing table of the VPN context through context selection logic (Alfieri, Fig. 5, Col. 5, lines 52-58). For example, "OSPF task 60-O performs operations in accordance with the received packet, which may include updating *the* routing table and initiating the transmission of one or more routing protocol packets to other routers in the VPRN" (Alfieri, Col. 5, lines 55-57). Thus, Alfieri discloses each VPN context having its own routing table. Nevertheless, Alfieri does not disclose the context forwarding table being updated from separate EGP and/or IGP tables.

Jagannath discloses implementing VPNs using multi protocol label switching (MPLS) by placing the VPN identification (VPN-ID) in the MPLS label field (Jagannath, Col. 3, lines 8-13). In addition, the MPLS label is also placed in the MPLS label field (Jagannath, Col. 3, lines 8-13). Jagannath further discloses a router building a common MPLS table from separate VPN routing tables (Jagannath, Col. 3, lines 21-26; Col. 4, lines 15-26). Forwarding of packets is performed by looking up the VPN-ID/MPLS label in the MPLS forwarding table (*Id.*). Alternatively, the packet VPN-ID identifies the a separate MPLS forwarding table used to forward the packet (Jagannath, Col. 3, lines 13-18; Col. 4, lines 7-14). Nevertheless, Jagannath does not disclose the context forwarding table being updated from separate EGP and/or IGP tables.

Applicant respectfully submits that the combination of Rekhtar, Alfieri, and Jagannath does not teach or suggest Applicant's claims. Rekhtar discloses VPN related routing information as (1) either a separate FIB table for each VPN *or* a common FIB table for all the VPNs; and (2) stored in a TIB. Jagannath discloses a separate MPLS forwarding table for each VPN or a common MPLS table for all the VPNs.

The Examiner asserts that Fig. 5 of Alfieri discloses that there are separate tables for each VPN context and for each routing protocol the context uses. Applicant respectfully disagrees. In Fig. 5, Alfieri discloses routing tasks (e.g. blocks 60-O, 60-B, and 60-R) that update a single forward table of each separate context. For example, Alfieri discloses "Each context area contains a routing table and other operating state information for a different VR [Virtual Router]." Furthermore, the routing tasks update the VPN context routing table: "OSPF task 60-O performs operations in accordance with the received packet, which may include updating *the* routing table and initiating the transmission of one or more routing protocol packets to other routers in the VPRN" (Alfieri, Col. 5, lines 55-57). Thus, the routing tasks do not maintain a protocol specific routing table for each VPN context. Instead these protocol tasks maintain the one routing table for each VPN context (Alfieri, Fig. 5, Contexts 66; Col. 5, lines 33-35; and also Col. 3, lines 49-51).

Therefore, none of Rekhtar, Alfieri, or Jagannath disclose maintaining a routing table that is updated from separate IGP and EGP tables. Nor do any of Rekhtar, Alfieri, or Jagannath discloses maintaining Exterior Gateway Protocol (EGP) VPN forwarding information in a common EGP forwarding table *and* VPN Interior Gateway Protocol (IGP) forwarding information in separate tables for each VPN.

For example, claims 6, 23, and 30 require "maintaining a first set of information for a first layer 3 virtual private network (VPN) context, the first set of information for including a first value identifying the first layer 3 VPN context; separately maintaining a second set of information for a second layer 3 VPN context, the second set of information for including a second value identifying the second layer 3 VPN context, wherein the first and second sets of information corresponds to a first and second customers accessing a backbone and maintained within a single network element of the backbone, and wherein the first and second sets of information include sufficient information to establish the first and second layer 3 VPNs contexts with other network elements of the backbone for the

first and second customer respectively; ... maintaining on a single network element a single exterior gateway protocol (EGP) table for the first and second layer 3 VPN contexts, wherein the single EGP table comprises EGP forwarding entries for the first and second layer 3 VPN contexts; maintaining on the single network element separate VPN context specific first routing and interior gateway protocol (IGP) tables for the first layer 3 VPN context, wherein the first IGP table comprises IGP forwarding entries for the first layer 3 VPN context and the first routing table comprises the IGP and EGP forwarding entries for the first layer 3 VPN, and wherein the maintaining the first routing table includes downloading to the first routing table the first layer 3 VPN context specific entries from the EGP and first IGP tables; and maintaining on the single network element separate VPN context specific second routing and IGP tables for the second layer 3 VPN context, wherein the second IGP table comprises IGP forwarding entries for the second layer 3 VPN context and the second routing table comprises IGP and EGP forwarding entries for the second layer 3 VPN, and wherein the maintaining the second routing table includes downloading to the second routing table the second layer 3 VPN context specific entries from the EGP and second IGP tables."

The above quoted limitations are not described or suggested by Rekhtar. While there are various uses for the invention as claimed, several such uses are discussed in Figure 2A and paragraphs 31, 35, and 37. Thus, while the invention is not limited to the uses discussed in these paragraphs, it should be understood that Rekhtar does not enable these uses and the above quoted limitations do.

For at least these reasons, Applicant respectfully submits that the independent claims are allowable. The Applicant respectfully submits that the dependant claims are allowable for at least the reason that they are dependent on an allowable independent claim.

Conclusion

Applicant respectfully submits that the rejections have been overcome by the amendments and remarks, and that the Claims as amended are now in condition for allowance. Accordingly, Applicant respectfully requests the rejections be withdrawn and the Claims as amended be allowed.

Invitation for a telephone interview

The Examiner is invited to call the undersigned at 408-720-8300 if there remains any issue with allowance of this case.

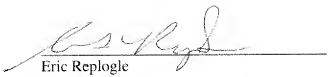
Charge our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Date: June 4, 2008



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